register, each of the nodes including:

a respective routing table storing setup information for connections within the unit, and

a respective monitoring unit independently verifying whether a connection can be set up within the unit.

A' entire C1

2. The bus system according to claim 1, wherein the unit, the unit having [has] a multi-dimensional cell architecture, the bus segments providing communication between cells of the cell architecture.

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6. (Amended) The bus system according to claim 2, wherein the unit having the multi-dimensional [programmable] cell architecture [includes a unit having] has a two-dimensional programmable cell architecture.

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7. (Amended) [The] A bus system [according to claim 1, further] for a unit, comprising:

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a plurality of electrically independent bus segments;

a plurality of nodes separating the bus segments and actively connecting and disconnecting at least two of the plurality of bus segments via at least one of i) a gate, ii) a switching element, iii) a driver, and iv) a resister, each of the nodes including:

a respective routing table storing setup information for connections, and

a respective monitoring unit independently verifying whether a connection can be set up; and

a data transmitter setting up only a first connection to a first node of the plurality of nodes, the first node determining a second connection to a second node of the plurality of nodes via a first bus segment of the plurality of bus segments as a function of the respective routing table of the first node, the second node neighboring the first node,

wherein the first node establishes the second connection to the second node if the second node is not busy with another connection, and

wherein the first node performs at least one of an

abortion and a termination of the second connection to the second node if the second node is busy with another connection.

A2 end

15 ~~14~~. (Amended) [The] A bus system [according to claim 1] for a unit, comprising:

a plurality of electrically independent bus segments;

a plurality of nodes separating the bus segments and actively connecting and disconnecting at least two of the plurality of bus segments via at least one of i) a gate, ii) a switching element, iii) a driver, and iv) a resister, each of the nodes including:

a respective routing table storing setup information for connections, and

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a respective monitoring unit independently verifying whether a connection can be set up; and

wherein at least one of the plurality of nodes is a data transmitter and at least another of the plurality of nodes is a data receiver, the data transmitter transmitting a data packet to the data receiver,

wherein the data transmitter and the data receiver are not involved in the performance of the at least one of the connection and the disconnection of the at least two bus segments by each one of the plurality of nodes, and wherein the data transmitter and the data receiver do not actively intervene in an operation of the plurality of nodes.

16 ~~17~~. (Amended) [The] A bus system [according to claim 1] for a unit, comprising:

a plurality of electrically independent bus segments;

a plurality of nodes separating the bus segments and actively connecting and disconnecting at least two of the plurality of bus segments via at least one of i) a gate, ii) a switching element, iii) a driver, and iv) a resister, each of the nodes including:

A4

a respective routing table storing setup information for connections, and

a respective monitoring unit independently verifying whether a connection can be set up; and

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wherein a first node of the plurality of nodes simultaneously broadcasts a data packet to several other nodes of the plurality of nodes, wherein the several other nodes returns a plurality of sync signals to the first node, the plurality of sync signals including an adjustable masking and an adjustable Boolean logic linkage.

18. (Amended) A method for transmitting data [in] within a module, the method comprising the step of:

transmitting the data between cells of a module having a multi-dimensional cell architecture with synchronization via a plurality of bus segments [of a multi-dimensional bus system],

wherein the plurality of bus segments are connectable in a plurality of configurations.

22. ~~(Amended) The method according to claim 19,~~ wherein the module having the multi-dimensional [programmable] cell architecture includes at least one of a field programmable gate array and a dynamically configurable gate array.

23. (Amended) The method according to claim 19, wherein the module having the multi-dimensional [programmable] cell architecture includes a module having a two-dimensional ~~programmable cell architecture~~.

~~43~~. (Amended) [The] A method [according to claim 42] for transmitting data in a module, comprising:

transmitting the data with synchronization via a plurality of bus segments of a multi-dimensional bus system,

establishing a connection via at least one bus segment of the plurality of bus segments and at least one node of a plurality of nodes;

disconnecting the connection as a function of an interrupt signal;

providing the interrupt signal to the at least one node; and

generating the interrupt signal when a predefined condition is satisfied,

wherein the plurality of bus segments are connectable in a plurality of configurations, and

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wherein the predefined condition is the at least one node exceeding a predetermined time limit.

38 ~~44~~. (Amended) [The] A method [according to claim 42] for transmitting data in a module, comprising:

transmitting the data with synchronization via a plurality of bus segments of a multi-dimensional bus system,

establishing a connection via at least one bus segment of the plurality of bus segments and at least one node of a plurality of nodes;

disconnecting the connection as a function of an interrupt signal;

providing the interrupt signal to the at least one node; and

generating the interrupt signal when a predefined condition is satisfied,

wherein the plurality of bus segments are connectable in a plurality of configurations, and

wherein the predefined condition is a predetermined time period in which no data is transmitted.

A6 39 ~~45~~. (Amended) [The] A method [according to claim 42] for transmitting data in a module, comprising:

transmitting the data with synchronization via a plurality of bus segments of a multi-dimensional bus system,

establishing a connection via at least one bus segment of the plurality of bus segments and at least one node of a plurality of nodes;

disconnecting the connection as a function of an interrupt signal;

providing the interrupt signal to the at least one node; and

generating the interrupt signal when a predefined condition is satisfied,

wherein the plurality of bus segments are connectable in a plurality of configurations, and

wherein the predefined condition is a predetermined time period in which data is transmitted.

40 ~~46~~. (Amended) [The] A method [according to claim 42] for

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transmitting data in a module, comprising:

transmitting the data with synchronization via a plurality of bus segments of a multi-dimensional bus system,

establishing a connection via at least one bus segment of the plurality of bus segments and at least one node of a plurality of nodes;

disconnecting the connection as a function of an interrupt signal;

providing the interrupt signal to the at least one node; and

generating the interrupt signal when a predefined condition is satisfied,

wherein the plurality of bus segments are connectable in a plurality of configurations, and

wherein the predefined condition is a predetermined amount of data having been transmitted.

41. (Amended) [The] A method [according to claim 42] for transmitting data in a module, comprising:

A6 end

transmitting the data with synchronization via a plurality of bus segments of a multi-dimensional bus system,

establishing a connection via at least one bus segment of the plurality of bus segments and at least one node of a plurality of nodes;

disconnecting the connection as a function of an interrupt signal;

providing the interrupt signal to the at least one node; and

generating the interrupt signal when a predefined condition is satisfied,

wherein the plurality of bus segments are connectable in a plurality of configurations, and

wherein the predefined condition is at least one of the at least one node exceeding a predetermined time limit, a predetermined time period in which no data is transmitted, a predetermined time period in which data is transmitted, a predetermined amount of data having been transmitted and a non-occurring condition.